

## CLAIMS

1. A radio receiving apparatus comprising:

5 a plurality of antennas that receive at mutually different timings an identical signal that includes a plurality of subcarrier signals whose frequencies differ mutually;

a receiving section that performs radio reception processing in a time series on received signals of said  
10 plurality of antennas;

a conversion section that performs orthogonal conversion of signals that have undergone radio reception processing in said time series, and obtains a plurality of subcarrier signals included in received signals of  
15 said plurality of antennas; and

a control section that performs phase rotation of a plurality of subcarrier signals included in a received signal of at least one antenna in accordance with phase rotation due to differences of reception timing of said  
20 plurality of antennas.

2. The radio receiving apparatus according to claim 1, wherein said control section:

includes a channel estimation section that  
25 estimates amplitude variation and phase rotation due to a propagation path environment of said signal; and

performs phase rotation of said plurality of subcarrier signals in accordance with estimated phase

rotation and phase rotation due to differences of reception timing of said plurality of antennas.

3. The radio receiving apparatus according to claim  
5 1, wherein said control section performs phase rotation of said plurality of subcarrier signals corresponding to an antenna other than a first antenna that receives said signal first among said plurality of antennas in accordance with a reception timing delay time with respect  
10 to reception timing of said first antenna.

4. The radio receiving apparatus according to claim  
1, wherein said control section holds in advance phase rotation amounts determined according to frequencies of  
15 said plurality of subcarrier signals.

5. The radio receiving apparatus according to claim  
1, wherein said receiving section comprises:

a first switch that switches said plurality of  
20 antennas;

a radio reception processing section that performs radio reception processing successively on a signal output from said first switch; and

a second switch that distributes a signal that has  
25 undergone radio reception processing in correspondence with an antenna that received that signal.

6. The radio receiving apparatus according to claim

1, further comprising:

a combining section that combines subcarrier signals of an identical frequency after phase rotation; and

5 a despreading section that despreads an obtained combined signal using a spreading code identical to a spreading code used in a communicating station.

7. The radio receiving apparatus according to claim  
10 1, further comprising:

a selection section that selects a subcarrier signal corresponding to an antenna with the best reception conditions among said plurality of antennas after phase rotation; and

15 a despreading section that despreads an obtained selected signal using a spreading code identical to a spreading code used in a communicating station.

8. A mobile station apparatus comprising the radio  
20 receiving apparatus according to any one of claims 1 through 7.

9. A base station apparatus comprising the radio  
25 receiving apparatus according to any one of claims 1 through 7.

10. A radio receiving method used in a radio receiving apparatus equipped with a plurality of antennas, said

radio receiving method comprising:

a step of receiving from said plurality of antennas at mutually different timings an identical signal that includes a plurality of subcarrier signals whose  
5 frequencies differ mutually;

a step of performing radio reception processing in a time series on received signals of said plurality of antennas;

a step of performing orthogonal conversion of  
10 signals that have undergone radio reception processing in a time series, and obtaining a plurality of subcarrier signals included in received signals of said plurality of antennas; and

a step of performing phase rotation of a plurality  
15 of subcarrier signals included in a received signal of at least one antenna in accordance with phase rotation due to differences of reception timing of said plurality of antennas.